# MOBILE HOUSING, A TEST IN SUBURBAN HARRISON, WESTCHESTER COUNTY, NEW YORK

by

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Signature of Author.....
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Certified by..... .....
Thesis Supervisor

Accepted by.....
Chairman, Departmental Committee on Graduate Students

ABSTRACT

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Submitted to the Department of City and Regional Planning on May 20, 1961 in partial fulfillment of the requirements for the degree of Master in City Planning.

The thesis is a design for a planned community of mobile housing. The design problem is to merge the mobile housing with a site in suburban Westchester County, New York by means of the plan. The plan is based upon a site of 2000 acres of suburban-rural landscape. Objectives of the thesis are conservation of the landscape for the benefit of both existing residents and proposed residents. The new population is to be 10,000 families.

It is an exploratory design to find an optimum relationship between open and developed areas. The crux of the design is a network of open areas running through the site, separating clustered neighborhoods from one another and separating the somewhat radical mobile housing from the traditional house and grounds

Thesis Supervisor: Kevin A. Lynch

Title: Associate Professor of City Planning.

32 Creighton Street
Cambridge 40, Massachusetts
May 20, 1961



Professor John T. Howard, Chairman
City and Regional Planning Department
Room 7-333
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Howard:

Enclosed is my thesis in partial fulfillment of requirements for the degree, Master in City Planning.

Yours very truly,

Richard R. Lowe

# ACKNOWLEDGEMENTS

I wish to express my appreciation to the following persons who participated in the review and criticism of my thesis: Professor Kevin Lynch, my thesis advisor, Professors John T. Howard, Roland B. Greeley and Frederick B. Adams. I also owe thanks to persons helping me with production details, Miss Jo Meecham, typist and consultant on format, and Mr. Allen Balsbaugh.

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# INTRODUCTION

## Statement of Problem

News articles appearing over the last few years indicate that two problems beset Westchester County.[1] One is a lack of moderately priced housing and another is the threat of inundation by residential housing developments which obliterate valuable suburban and rural landscape and which fail to meet the needs of people seeking houses and community life. The author assumes as a starting point that these problems exist, and that the conflict could be explored in many ways. This thesis project is an exploration of the conflict, but the exploration is limited to one case study.

The thesis project is an exploration of a specific and extreme, though hypothetical, conflict. The problem is to merge mobile housing for a specific population with the Westchester suburb, Purchase, comprising mostly undeveloped land and also about 300 single family dwelling establishments, many of them large estates, and other developed land uses including a small college campus, a few small institutions, and several recreation areas. A major transition in land use could be

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[1] Examples: "Spring Spurs Quest For Suburb Homes, Though Prices Rise," by Clarence Dean, New York Times, Sunday, March 23, 1959, page 1, col. 4. "Westchester Sets Its Growth Needs," by Merrill Folsom, New York Times, Sunday, June 19, 1960, page 60, col. 1. A news story on future needs which appeared in New York Times, January 23, 1960, page 23, col. 2, which quotes County Executive, Edwin G. Michaelian, "you cannot stop people from moving into the atmosphere we have created." A news story on problems, New York Times, January 11, 1960, page 137, col's. 1,5, quotes same executive, "one unsolved riddle has been the production of sufficient moderate priced housing near jobs."

coming about. A 500 acre farm containing over one/tenth of the land area under study was listed for sale in the fall of 1960. Other smaller pieces are for sale. This does not constitute grounds for expecting an overthrow of The Town's land development policy, which favors a two acre minimum lot, and a subsequent inundation by standard low density housing or any other kind of development. It does indicate that drastic change is possible.

The change proposed by the thesis plan might be an extreme development alternative for Purchase. Nonetheless this kind of a development is a likely occurance in the future, somewhere and this particular thesis could serve as a basis for beginning to plan for a resolution of apparent conflicts of this kind where they do occur. The thesis' site could be in any similar suburban areas.

The mobile housing will accommodate 10,000 families. This figure was set as follows: a number of sketches based upon map and aerial photograph information showed that about 2000 acres are available for development; a decision was made to take a density figure of 5 dwellings per gross acre in order to make the test development comparable to standard housing developments such as Levittown, Long Island, New York.

The site is a particularly attractive rural-suburban landscape. Mobile housing, which for the most part comes in the combination form of wheeled dwellings and residential-parking sites fixtured with pipes for supply and waste and sometimes landscaped. Mobile housing is economical because the dwelling component is industrialized. It offers a possible method of housing moderate income families providing that it contains enough space for a reasonably normal range of family sizes and

providing that it can be located upon a suitable residential site. The Purchase site appears to be an attractive site for a community of mobile houses. A major question which is to be answered within the thesis project is, what impact would the establishment of the community make upon the site in Purchase?

Residents of Purchase who now enjoy not only their own large parcels of residential land, but also several very large parcels of which some are undeveloped and others are developed as golf courses, one is a college campus, and another is a polo club. Residents of Purchase would probably lose some of their own land, assuming the developer had the means of acquiring what he needed, and they would lose most of the undeveloped land. These losses might not appear to be important to the incoming population, but it becomes obvious that as development proceeds, land is taken, and the result can be a landscape devoid of its original advantages. The newcomers would gain a residence in the suburbs, but would they have an attractive community or merely a temporary foothold? Any kind of development could end with this result. Developments of mass housing at the given density of 5 dwellings per gross acre are particularly threatening.

## Approach

The problem is approached as a design problem based upon a program partly assumed and partly taken from information about the site. A design program is formulated, a design for the community is created and the design serves as a conclusion in itself, as a basis for appraising the wisdom of the major objectives, which follow in the next section.

Objectives

1. Show how mobile housing could be accommodated in a community plan which also includes existing dwellings of a different scale and community facilities for the given population.
2. Show how valuable portions and characteristics of Purchase, which are elaborated both in the program and in the plan, could be conserved.

Optional Additional Objective

3. Implications of thesis in terms of land development policy and land use controls.

Outline of Techniques

1. Site selection. The New York Metropolitan Region was chosen for this study for the reason of convenience for the author. The Regional Plan Association and the Westchester County Department of Planning advised the author where to find a site meeting the following criteria: 4,000 acres, close to rail service to New York City, and close to freeways serving the spreading job facilities of the suburb.
2. Sub-regional information. Geographic information was collected and reviewed to guide program assumptions on sub-regional transportation. Population information was reviewed to guide assumptions on income distribution, quantities of children by school age groups, and religious preference. Income and ages were important in programming for housing, shopping and for schools respectively. Religious

preferences were not an important influence in the program, but they did serve as a check on rough space standards obtained elsewhere.

3. Survey of the site. This included a visual survey conducted both while driving and while walking, and a survey of maps and aerial photographs.

4. Informal conversations at the site. These were unplanned both as to company and content, but were not inconsequential in the design.

5. Population assumptions and elaboration. The total number of families was decided first, which is mentioned in the problem statement, breakdowns into family size, ages of children and incomes were then made with the help of standard information from The U. S. Census and from reports by Westchester County, and lastly special breakdowns such as demand in terms of number of bedrooms were made by deliberate guessing. The objective in deliberate guessing was to arrive at a table of specifications of a degree of accuracy consistent with the population assumptions which could be used to identify approximate quantities of families who, for example, would meet with difficulty in paying for mobile housing.

6. Collection of information on available Mobile Homes and other mobile housing components.

7. Diagram studies. Mobile houses, groups of mobile houses and the whole community of mobile houses with their neighborhood and central facilities were diagrammed both in plan and in elevation separately to determine lot requirements, sub-area and/or

neighborhood area requirements, and total community land use requirements. Conventional sketch techniques were employed in studying alternatives.

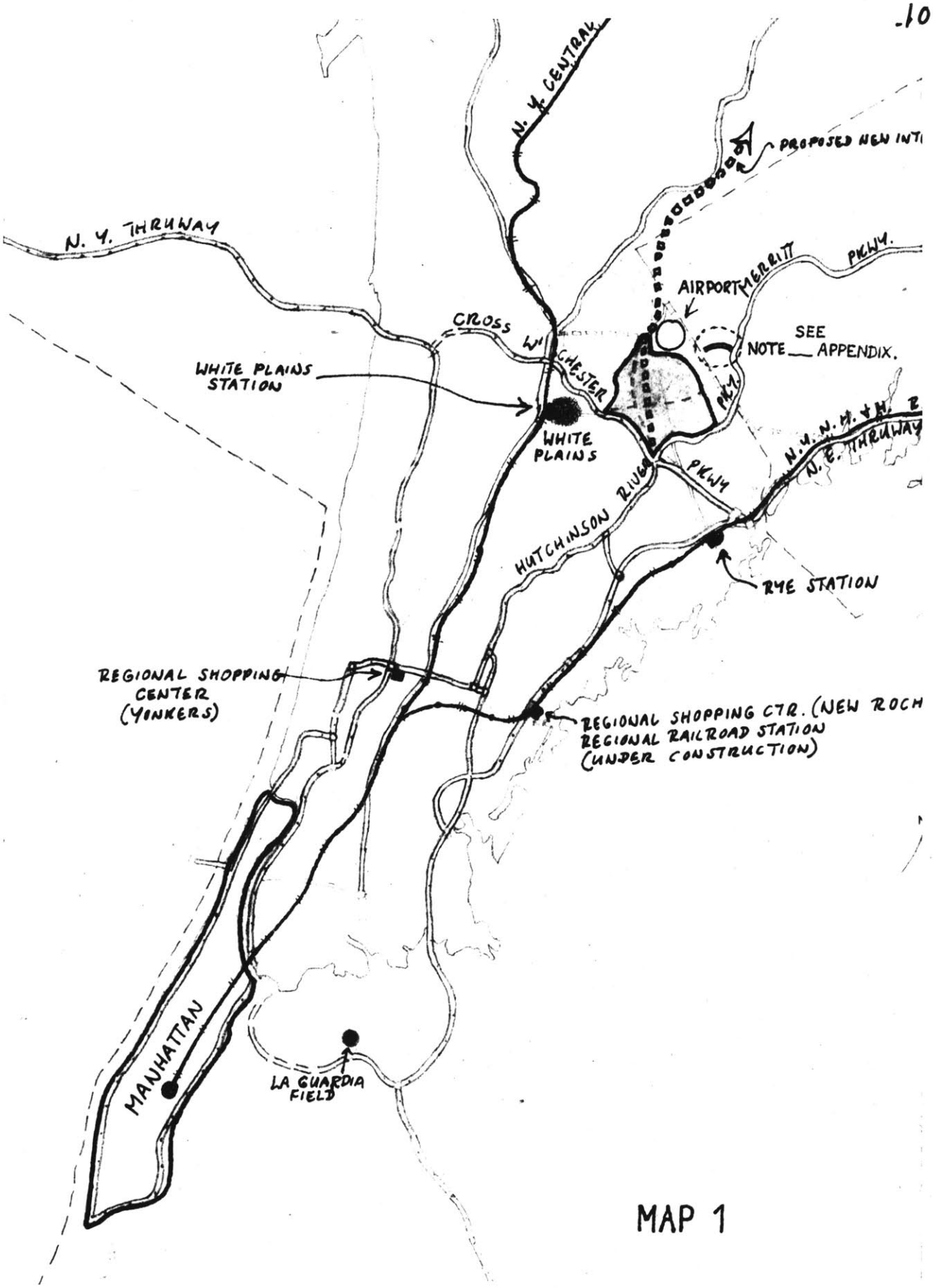
8. Design of the community land use plan. This is the synthesis of all information, impressions and objectives into the whole plan.
9. Conclusions. The land use plan is subjected to critical review and a verbal statement covers the appraisal of the objectives.
10. Opportunities for further research. (self-explanatory)

## PROGRAM: PART ONE

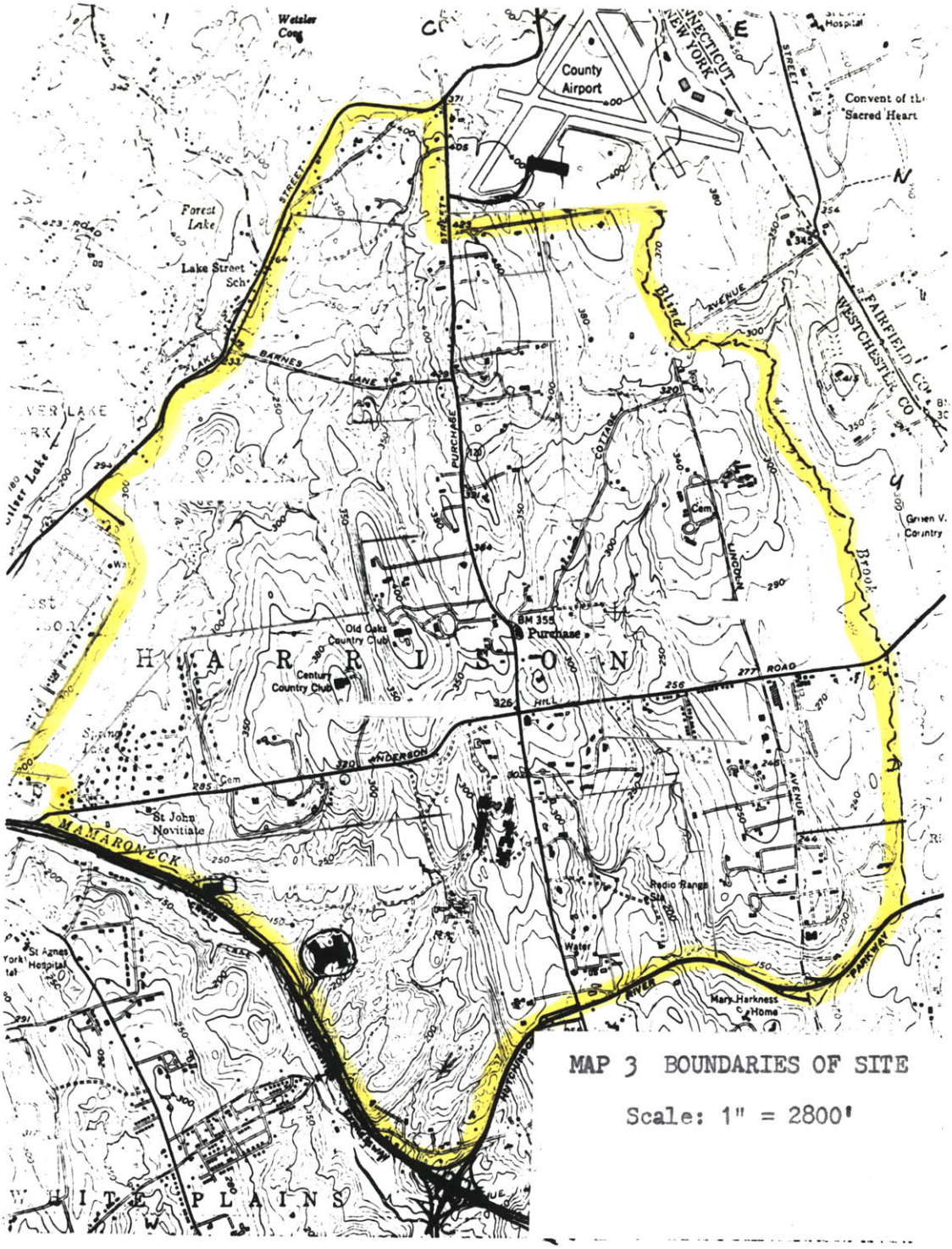
Environment. Map 1 of the sub-regional environment of the site shows the relationship of the site (in yellow) to freeways and major roads, to the center of the metropolis, to railroads and their stations, to the water, and to airports. The map influences circulation within the site.

### The Land

Boundaries. Map 2 shows the site in heavy outline. It is bordered by the Westchester County Airport, at the top of the map; Blind Brook, the border between the Town of Rye and the Purchase Area of the Town of Harrison on the east; The Hutchinson River Parkway on the south-east; the Mamaroneck River and coincidentally the Cross Westchester Expressway on the south-west; West Harrison, a dense, single family district covering a hill on the west; and Lake Street which contacts the beginning point at the Airport on the north.


N. Y. CENTRAL
PROPOSED NEW INTL
N. Y. THRUWAY
AIRPORT
MERRITT PKWY.
SEE NOTE — APPENDIX.
CROSS W
CHESTER
WHITE PLAINS STATION
WHITE PLAINS
PKWY
N.H. & H. R
N.E. THRUWAY
HUTCHINSON RIVER PKWY
RYE STATION
REGIONAL SHOPPING CENTER (YONKERS)
REGIONAL SHOPPING CTR. (NEW ROCH
REGIONAL RAILROAD STATION
(UNDER CONSTRUCTION)
MANHATTAN
LA GUARDIA FIELD

MAP 1



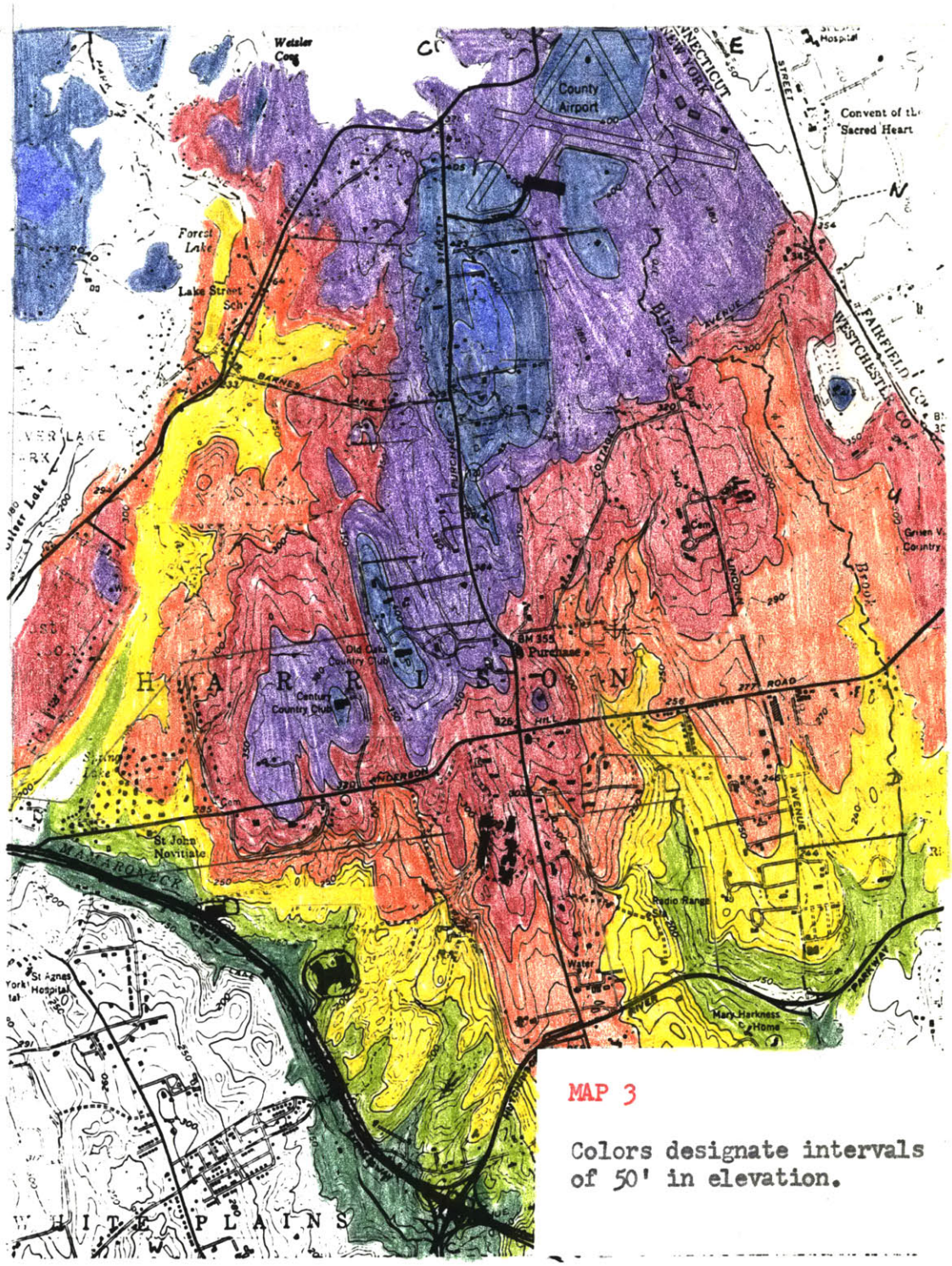

MAP 3 BOUNDARIES OF SITE

Scale: 1" = 2800'

Land area. Approximately 4000 acres.

Land form. Map 3 shows ranges of elevation in colors. The highest point is 470' above sea level and it is near the north-center of the site. The ridge underlying that point begins as a relatively flat, mile-wide plateau (the airport is sited on the plateau) and tapers toward the south-west where it ends in two distinct forms, a north-south, three quarter-mile long ridge and a small peak just about one thousand feet south-west of the ridge. These smaller scale land forms are more important than the highest point within the site as they are closer to important entrance points and as they and other intervening land contours obscure it. Construction intended to serve a landmark function, as a secondary function, needs to be located upon the smaller, somewhat lower and closer ridge and/or small hill. Public buildings of normal size on these places would automatically serve a landmark function whereas a landmark upon the highest point toward the top of the site would need uneconomic height to achieve equal prominence from important entrance points. Between the two forms is a long narrow depression running north and south.

Map 3 also shows a long form nearly coincidental with the western boundary. This form begins as a steep valley at Spring Lake, continues for about a mile as a steep valley especially steep on the south and for its second mile spreads into a shallower form of which the floor is swampy. This valley carries a stream which is a merger of smaller streams from northwest and northeast. Two small points of land extend from the west side of the site into the shallow valley. Another shallow valley extending




MAP 3

Colors designate intervals of 50' in elevation.

from Spring Lake, roughly, to the south-east is occupied by the Cross Westchester Expressway, previously mentioned. This valley is complicated by a jagged series of skirt and point forms protruding from the south-western side of the site. A shallow valley carrying Blind Brook coincides with the entire eastern boundary.

The same map shows another valley, mostly shallow, but with a few steeper walls here and there, running into the site from a point between Purchase Street and Lincoln Avenue at the Hutchinson River Parkway. It terminates in a small lake near Anderson Hill Road. As a matter of fact there are two lakes. They are on either side of Anderson Hill Road; and on which one this valley terminates is a matter for interpretation by the planner.

Most of the land lies above 250' in elevation. Colors of red through blue are above this elevation, see map, and this land resembles the plan of a hand with the wrist at the airport and the fingers slightly extended SW-SE. Other land lying below 250' resembles a crescent and encircles the site between 11 o'clock (due north is 12 o'clock) and about 3 o'clock in a counter-clockwise direction.

Land form. Map 4 shows the author's interpretation of the topography in terms of more or less flat planes. There are two main planes of long and narrow shape running north and south in the middle and on the eastern side of the site. There are several smaller planes including several on the west side which parallel the larger planes. Between these planes are a variety of steeper slopes and joints. A comparison of this map (4) with map 3 reveals a subtle topographical conflict; that is, the prominent


MAP 4

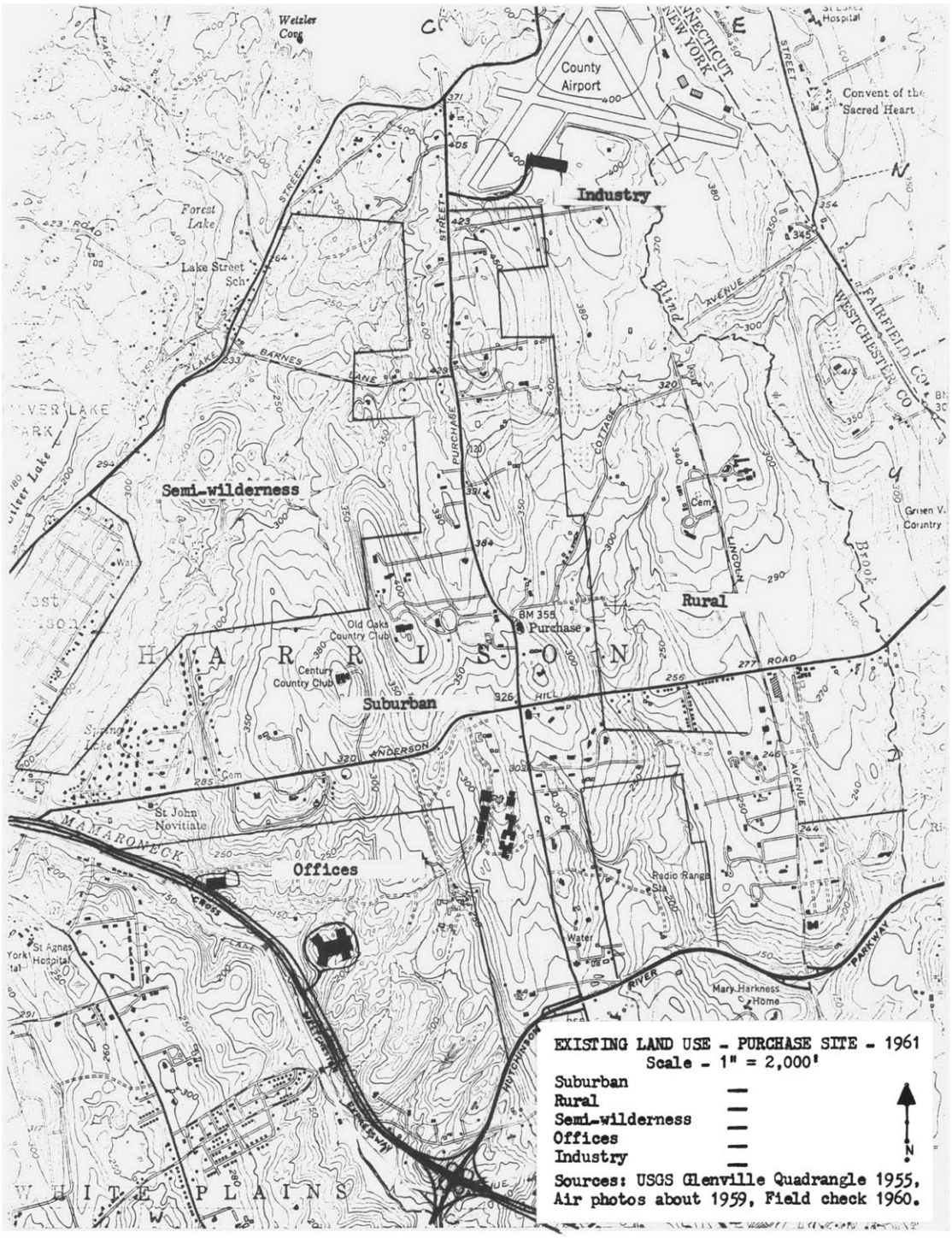
Planes of relatively flat land.

ridge runs distinctly north-east to south-west while the flat planes run north-south. A new land plan could be oriented along a main axis coincidental with the ridge, but that orientation might conflict with existing development.

Land uses. The following is a statistical summary of existing generalized land uses with areas shown on Map 5 and tabluated as follows:

| | |
|---|---|
| Spring Lake Residential District | 90 acres |
| North Lake St. Residential District | 210 acres |
| Cross Westchester-Purchase Industrial District | 50 acres |
| Country Club 1 | 160 acres |
| Country Club 2 | 200 acres |
| Polo Club | 100 acres |
| Manhattanville College | 230 acres |
| Purchase-Lincoln Residential District | 560 acres |
| Spring Lake Valley | 250 acres |
| Strathglas Farm | 440 acres |
| Undeveloped land | 1710 acres |
| TOTAL | 4000 acres |

The land areas and uses just listed cover the original 4000 acres picked in the stage of site selection. It was decided at the outset of programming that some of the uses and areas of the total would be taken out of the design problem and that others would be given special treatment as a matter of policy, not design. A tabular description of these changes appears in the following text. Details


Industry
Semi-wilderness
Rural
Suburban
Offices
Industry
EXISTING LAND USE - PURCHASE SITE - 1961
Scale - 1" = 2,000'
Suburban
Rural
Semi-wilderness
Offices
Industry
N
Sources: USGS Glenville Quadrangle 1955,
Air photos about 1959, Field check 1960.
HARRISON
WHITE PLAINS
MAMARONECK
Purchase
BM 355
County Airport
Old Oaks Country Club
Century Country Club
St John Novitiate
St Agnes Hospital
Lake Street Sch
Forest Lake
Convent of the Sacred Heart
Mary Harkness Home
Radio Range Sta
Green V. Country
Cem
Water
Hill
PURCHASE STREET
LAKE STREET
BARNES LANE
ANDERSON AVENUE
277 ROAD
LINCOLN AVENUE
COTTAGE
Blind Brook
WESTCHESTER CO
FAIRFIELD CO
CONNECTICUT
NEW YORK
HUTCHINSON RIVER PARKWAY
CROSS COUNTY PARKWAY

and qualities of the landscape. The landscape can be divided into the categories, rural, semi-wilderness and suburban, although the three are intermixed both in plan and in qualities to some extent. The semi-wilderness covers most of the north-west quarter of the site although it is dotted sparsely with houses and small buildings for various public uses. The topography is rolling and is covered generally with a light forest. The suburban landscape covers a complex band of land which in plan can be described as a small letter h whose cross bar extends on to the left as follows: . The crossed h coincides with major roads along which there are isolated houses and grounds, four clusters of houses of which one only is a subdivision with several streets and many houses, quadrangle of college buildings set within a large estate. Two golf courses running over the central portion of the site and on top of the ridge and small hill and depression, previously described -- the courses comprise 18 holes each and the holes (a hole is a whole swathe from tee to green) are bounded by handsome clusters of trees, ponds, glades, and patches of light forest - each course has as its headquarters and social center a mansion together with drives, tennis courts, gate houses, pools and outbuildings; a recreation center set within one of the golf courses; and a polo club with a large field and grand stands, a corral next to a court yard surrounded by stone barns, various sheds and dominated by a stone silo. Divisions of the suburban landscape into separately owned parcels is not clear on the surface. Growth in forms as various as grassy ground cover, bunches of tall trees, hedgerows and banks of perennial bushes interlace across boundary lines

and even obscure road edges so that the suburban landscape is a continuous flowing pattern of nature, some wild and some cultured, and buildings with the natural growth predominant. An exception to these conditions is the Spring Lake Residential District which is a more dense man-made construction and is more articulate with its ownership boundaries. Lots within the district range from one to two acres in area and their upkeep is definitely more urban than rural. Many of the lawns are manicured, bushes and flower-beds are carefully arranged, the houses are stylized. Just east of the center of the site there is an old subdivision of tightly bunched frame, two story houses laid out in a T on one side of Anderson Mill Road. This appears as a center and in fact does contain a small bar and some home occupations,but it is more like a way station far in the country. Its tightly packed ranks of houses serve to increase the sense of isolation partly because they are on one side and open country is on the other side of Anderson Mill Road and the one foils the other and partly because this tiny village is passed as quickly as it is found when one drives along the road. The rural landscape occupies most of the north-east quarter of the site. Most is,in fact, one farm. This farm surrounds three clusters of buildings beyond which the land is broken only by an occasional tree, rows of stone fences and patches of light forest.

The polo club can be categorized alternately as a part of the rural landscape particularly as it is now the only habitat of animals within the site. Formerly the Strathglas Farm was used to breed and raise prize cattle and the landscape seems a little barren without the

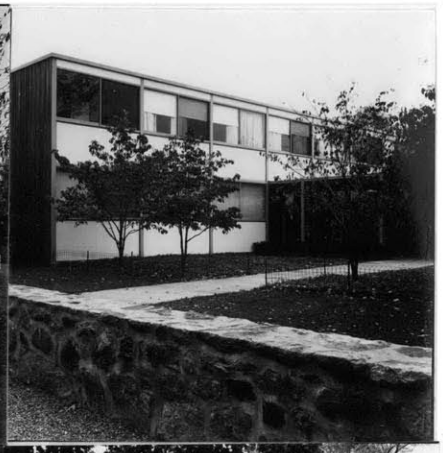
animals (which the author has never seen on that land). The rural landscape being isolated from activity areas and main roads is quiet with only an occasional car running through it, compared to a somewhat heavier traffic on Purchase Street, Anderson Hill Road, and lower Lincoln Avenue where the suburban houses are concentrated.

The whole site is unified by nearly consistent shallow waves in the topography, by a continuous, slow rhythm of alternations of light and heavy, opaque and transparent, and otherways varying organic growth, by a simple cross shaped major circulation system, by repitious clustering of buildings or strong individual buildings set well back from the roads and isolated from other buildings, and by a rural landscape furniture of gates and fences. These continuities are in sharp contrast to the Spring Lake Residential District with its much greater definition and feeling of being organized. Many of the building clusters and individual building sites are also internally defined and organized, which inside looking out into undeveloped terrain gives a sense of contrast.

Photographs. These were taken during the fall of 1960 prior to writing the design program. It was on the basis of the visual survey, of which these photographs are a partial record that the policy of conservation was decided upon. Some of the very large houses such as shown in photograph 12 have been given up by single family occupants of conventional size and taken over by occupants such as the nunnery (photograph 12) or a philanthropic organization. But many of the

houses are occupied and construction of new, smaller single family dwellings continues. While the standard of living reflected in the new construction is in most cases still high, for example see photograph 10, it is substantially changed from the time when very large estates were the predominant land-use on the site. These photographs indicate some of the visual conditions of each of the three landscapes: rural, semi-wilderness, and suburban.

Photograph 1.



10

12

## PROGRAM PART II ASSUMPTIONS

1. Inter-State Route 87[2]. The State of New York will build a limited access freeway for a design speed of 70 m.p.h. through the site. Entrance points are a point 180' above sea level over the interchange of the Hutchinson River Parkway[2] and the Cross Westchester Expressway[2] and at a point 370' above sea level between The Airport and Rye Lake. Between those two points it will lie within New Purchase on an alignment shown on Map 6 . The Right of way will occupy a strip approximately 400' wide. Interchanges with sub-regional roads will occur at points three miles from the site on the north and on the south.
2. The Westchester County Airport will generate more traffic as it will be developed for industrial uses and it will become a helicopter terminal for the sub-region. Road traffic will require a route west to North of White Plains and a redevelopment of King Street along the Connecticut border. Air traffic will not be a significant noise problem directly over housing as most craft will use the NW-SE runway, which has been lengthened for use by the Air National Guard. The latter produces annoying noises, which to the author are of unknown frequency and duration.
3. New Roads. King Street on the east will be expanded to accommodate traffic moving between the New England Thruway in Connecticut and the Airport and points north including the Route 87 Interchange

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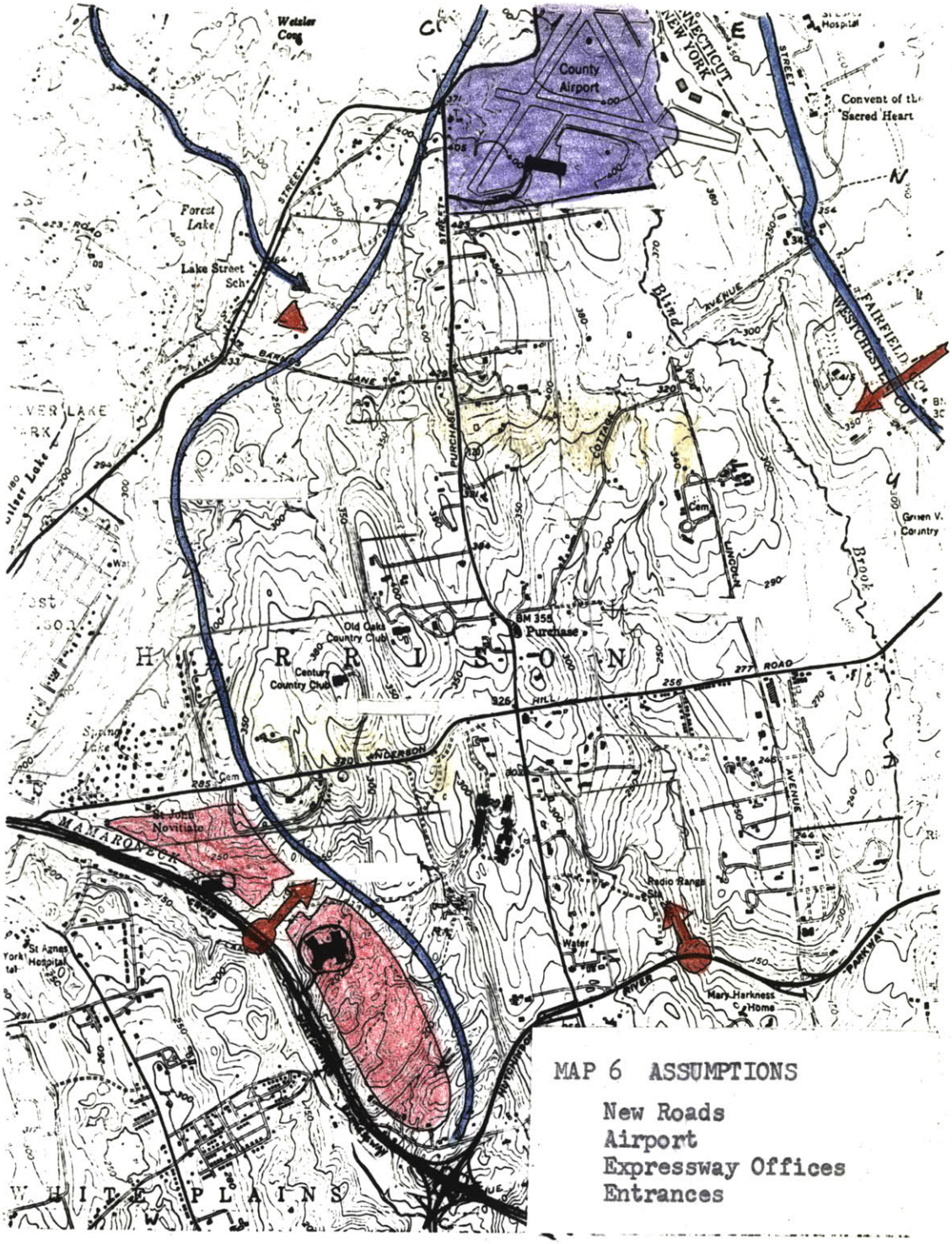
2. For convenience text will use the terms: Route 87, The Parkway and The Expressway.




MAP 6 ASSUMPTIONS

New Roads
Airport
Expressway Offices
Entrances

three miles to the north of the site west through North Castle. Roads, within the site will carry traffic going roughly north - south and east-west from one side to the other of the site. The County plans to develop the east-west route and needs an alignment recommendation from The Town. The north-south route will carry traffic moving between points south of Purchase and points north-west and north of Purchase other than traffic which could be served by Route 87.

4. Connections and entrances. Map 6 shows at what points the site will be connected to surrounding roadways. It shows that the two existing interchanges between Purchase Street, Lincoln Avenue and The Hutchinson River Parkway have been eliminated, and that a new interchange is shown at a point between the two. A new interchange between the Cross Westchester Expressway and the site is shown at a point SW of the center of the site. The following table shows the percentages of traffic which will move in various directions for several kinds of trips.

| | 1<br>Journey to work | 2<br>Shopping | 3<br>Recreation Not in Co. | 4<br>Recreation In County | 5<br>Mobile House Moving |
|---|---|---|---|---|---|
| W and NW | 50%(15%*) | 50% | Part 70% | Part 90% | 50% |
| SW | 20% | 40% | | Part 90% | 50% |
| S and SE | 20%(10%) | 10% | 30% | Part 90% | |
| E and NE | negl. | negl. | Part 70% | Part 10% | |
| N | 10% | negl. | Part 70% | Part 10% | |

Comments on table. The asterisk marks transfers into trains at White Plains and Rye. Shoppers will place one/half of their consumer expenditures

in White Plains, New Rochelle and New York City. Recreation travel will vary in volume and points of destination with seasons, weather, events and at any one time most recreation traffic could move in one direction. Three to ten mobile houses will move each day.[3] Public transit will link the site with White Plains and Rye and incidentally with The Airport. The main entrance will be on the south-west side of the site where traffic can turn south-east and continue to Port Chester and Rye or transfer to The Parkway for destinations south-west or where it can turn north-west to enter White Plains or continue on to points west and north-west of White Plains.

5. Office-industry. The land on The Expressway is already occupied by two office-plants and the land will develop with more industry of this kind when Route 87 is completed and cuts this land from the site.

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3. As of May 1, 1961 the Mobile Homes Manufacturers Association estimates the average stay-in-one-place at 27 months. The author assumes this would be high in this situation.

## PROGRAM PART III GENERAL LAND USE POLICY

Distribution of land before and after plan. Some of the uses and areas were taken out of the design problem and others were especially categorized as follows:

1. To be frozen - land use and boundaries stay as existing.
   a) Spring Lake Residential District
   b) Spring Lake Valley
2. To be altered - land use, but not boundaries stay as existing.
   a) North Lake Street Residential District
   b) Manhattanville College
   c) Purchase-Lincoln Residential District
3. New uses.
   a) Cross Westchester Office-Industrial District
   b) Inter-State Route 87
4. Movable & functions stay on site, locations and boundaries change.
   a) Country Clubs 1 and 2
   b) Polo Club

The Strathglas Farm and the remainder of the undeveloped land are almost wholly allocated to new development. The following table expresses these decisions in terms of acreages before and after:

| Existing | | Plan |
|---|---|---|
| 90 acres | Spring Lake Residential District | 110 |
| 210 | N. Lake Residential District | 175 |
| 0 | Interstate Freeway | 190 |
| 50 | Cross Westchester Industry | 300 |
| 160 | Country Club 1 | 140 |
| 200 | Country Club 2 | 200 |
| 100 | Polo Grounds | 50 |
| 230 | Manhattanville College | 115 |
| 560 | Purchase-Lincoln District | 560 |
| 250 | Spring Lake Valley | 160 |
| 440 | Strathglas Farm | 0 |
| 1710 | Undeveloped Land | 0 |
| 0 | New Development | 2000 |
| 4000 | | 4000 |

Population. The following is a summary of the total population and selected characteristics broken into detail as necessary to guide design decisions. There are explorations in greater detail than necessary made in the course of the project. These are located in Appendix A along with tables supporting this summary. The basic figure of 10,000 families is the result of a decision, not of a market analysis.

The land area available for new development is about 2,000 acres as will be shown in a following section. A decision was made to plan for a population in the new development of mobile housing at a density

of 5 families per gross acre on the 2,000 acres. Perhaps that density figure is too high for realization of the objectives. Perhaps it could be higher without jeopardizing the objectives. These are possibilities which exploration of the thesis, the design, may illuminate. The 5 per acre density is consistent with a residential density which is standard for many developments for moderate income families, for example, one of the Levittowns. Thus the choice of density provides a basis on which the thesis may fairly be judged as an alternative among well known examples of moderate income housing.

Table 1 . Population, Family size, Income, Shops, Children, Schools

| Families | Family size | Number of people | Average family income |
|---|---|---|---|
| 10,000 | | 30,000 | $6,780 |
| 1,000 | 1 | 1,000 | $5,600 |
| 3,500 | 2 | 7,000 | 6,000 |
| 2,000 | 3 | 6,000 | 6,500 |
| 2,000 | 4 | 8,000 | 7,700 |
| 1,000 | 5 | 5,000 | 8,400 |
| 500 | 6 | 3,000 | 8,800 |
| Children....Total | | 8,800 | |
| Under age 5 | | 2,600 | |
| 5-13 | | 4,400 | |
| 14-18 | | 1,800 | |

| Commercial Floor Area | |
|---|---|
| Food | 158,000 sq.' |
| Drugs | 16,7000 |
| Clothing | 25,000 |
| Liquor | 8,300 |
| Department | 33,400 |
| Shoes | 16,700 |
| Furniture | 12,500 |
| Household | 25,000 |
| Restaurant | 12,500 |
| Car | 100,000 |
| Other | 5,000 |
| Total | 413,100 sq.' or 10 acres |
| Parking = 4 · 10 = | 40 |
| Total..... | 50 acres. |

| Schools | Number | Acres each | Total acres |
|---|---|---|---|
| For children under 5 | 13 | 2 | 26 |
| 5 - 13 | 7 | 15 | 105 |
| 14 - 18 | 1 | 50 | 50 |
| | | | 181 |

## PROGRAM PART IV NEW DEVELOPMENT

New Development. Housing and shops and community services related directly to the new housing will consume acreage as follows;

| | |
|---|---|
| Housing, sub-areas, intra-sub-area circulation, nursery schools, clubs, management offices, and any other use or function within the sub-area | 1700 acres |
| Schools | 180 |
| Commerce | 50 |
| Churches | 30 |
| Recreation Center (library, gymnasium, auditorium) | 20 |
| Administration and Government | 20 |
| TOTAL | 2000 |

These acreages are a reflection of standards taken from a recent study[x] and of interpretation of the standards in the light of the quantity of population as well as assumed characteristics of the population.

These figures do not represent absolutely fixed relationships. The land-use planner can combine the shopping areas, whose acreage represents 80% parking area and 20% interior store area, with the Administration and Government area and another central facility area. This would result in a lesser amount of acreage for the total. Another saving would result from the locating of schools within the Lincoln-Purchase residential district. The feasability of these combinations can be explored by experimental design.

Housing densities. Houses will be distributed as follows:

Numbers of families by density

| 20/acre | 10/acre | 5/acre |
|---|---|---|
| 3000 | 5000 | 2000 |

Numbers of persons by density

| 20/acre | 10/acre | 5/acre |
|---|---|---|
| 5700 | 15,500 | 8800 |

| Numbers of children under eighteen | | |
|---|---|---|
| 20/acre | 10/acre | 5/acre |
| 400 | 4480 | 3920 |

Housing sub-area size. No sub-area will contain less than 100 units as that is assumed the minimum economic unit for operating and management efficiency. Sub-areas will be separated from one another and a network of open areas will cover the site. These will contain pathways exclusively for recreation, pedestrian and bicycle circulation.

The housing. The next sections contain a discussion with illustrations and diagrams of the following: 1. mobile house, 2. grouping of mobile houses for several social and land conservation requirements, 3. central facilities, 4. relationships to existing houses of traditional construction and 5. capacity of mobile housing to satisfy demand of the given population.

1. Mobile house. Basic family shelter will be provided by 10,000 mobile houses in addition to the 300 existing houses on the site. Mobile house is a generic term covering what are variously called house trailer, trailer house, trailer coach, caravan (England), travel trailer, mobile home, movable home and manufactured home, and combinations of these single or double units with supplemental space which is available wholly manufactured or in prefabricated pieces. A more descriptive generic term would be industrialized, compact, mobile house. These modifying terms are representative of several reasons for a family's choosing a mobile house, such as economy among others, which will be stated. However, mobile house is used in the text for brevity and for its similarity to the term mobile home which is the common term employed by business.

Mobile houses are manufactured wholly within a factory, except for additions or supplementary space in reasonably conceived forms at the site, and are transported in one or two parts over highways or railroads. Once located at the site and plugged into essential utilities, a unit may be un plugged for moving or renewal.

Mobile house does not imply any particular surface appearance. And models are at least as variable in form and ground-relationship as the following illustrations indicate. These illustrations of available models represent the production of manufacturer's of average and above average priced units. The illustrations of proposed designs represent the ideas of designers given similar dwelling design parameters as those limiting manufacturers. The illustrations also show several ideas for solving spatial, aesthetic and outdoor living problems of current mobile housing. Note particularly the following features and/or ideas: the room extensions; the dual-component model, which provides two times the space of ordinary models; the simple, aluminum, solid color siding which mitigates aesthetic prejudices against mobile homes' appearance, and the outdoor living arrangements provided by portable decks, roofs, privacy screens which in no way compromise mobility and which would improve livability and appearance as well. The thesis is based upon dwelling design parameters as are implied by current models, though parameters may change as a result of design research which is now underway according to some of the manufacturers. The changes could invalidate some parts of the following test design, but would not affect it's validity as a test.

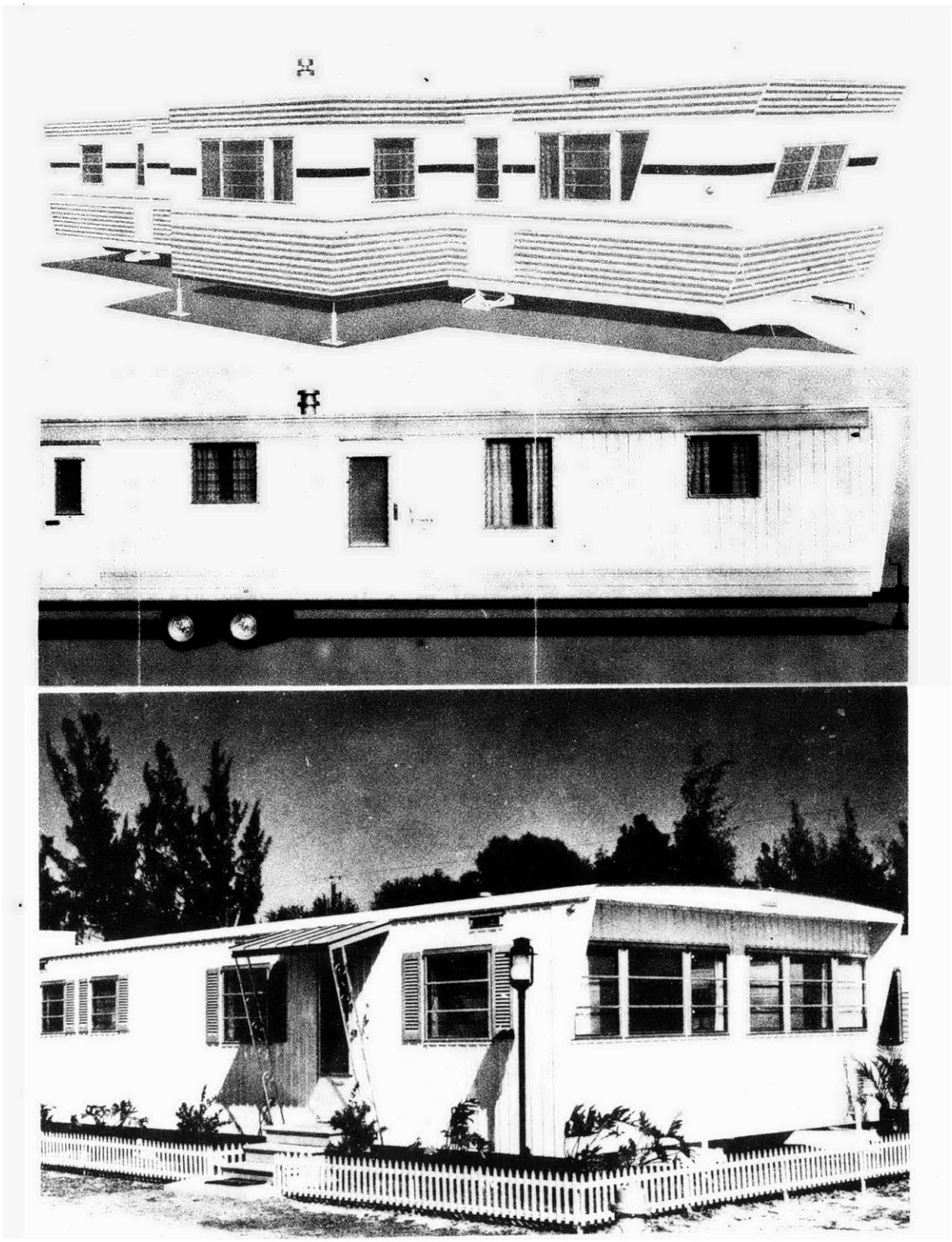


PLATE 1. Current Models

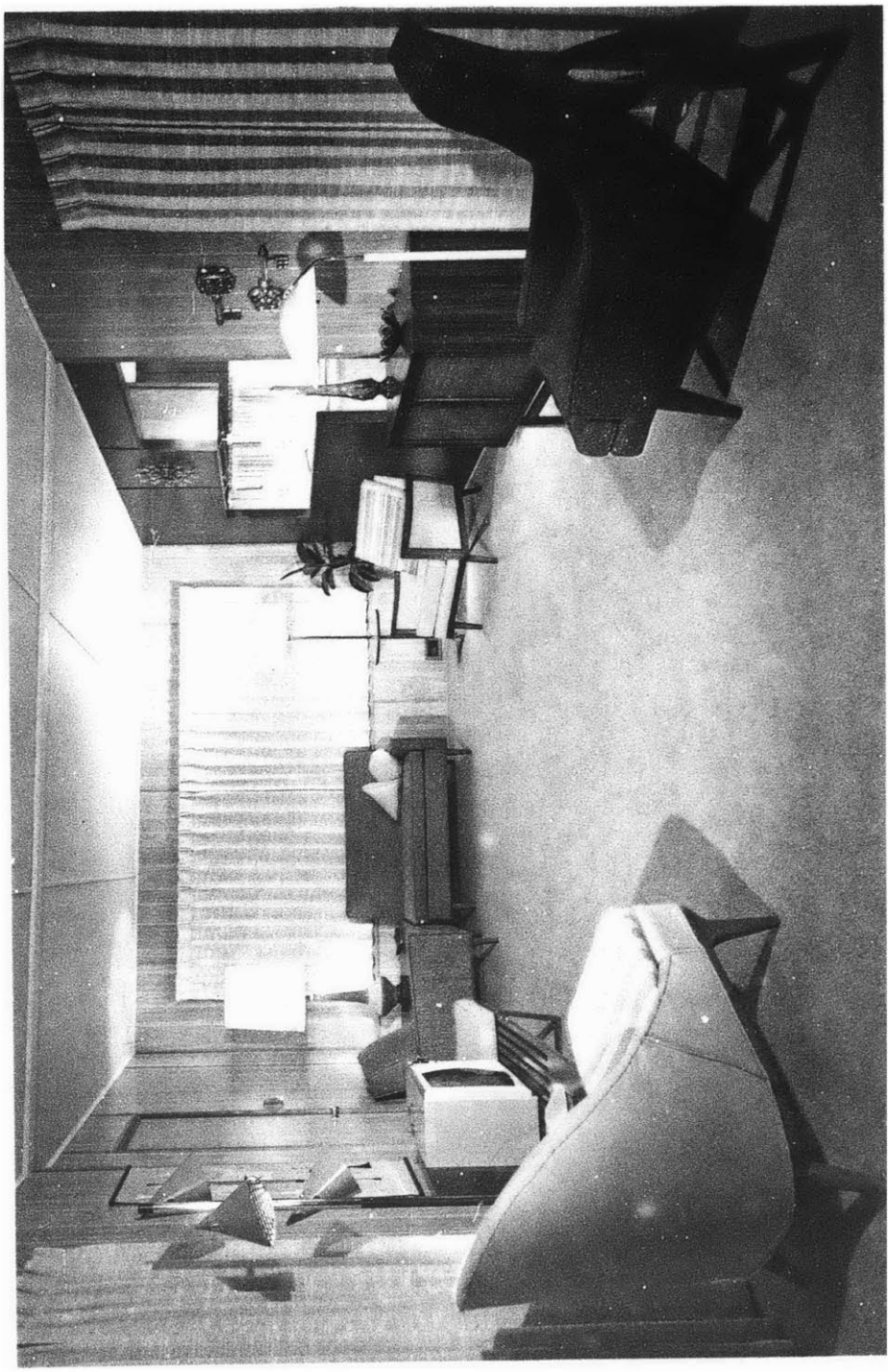


PLATE 2. Interior of an expandable living room.

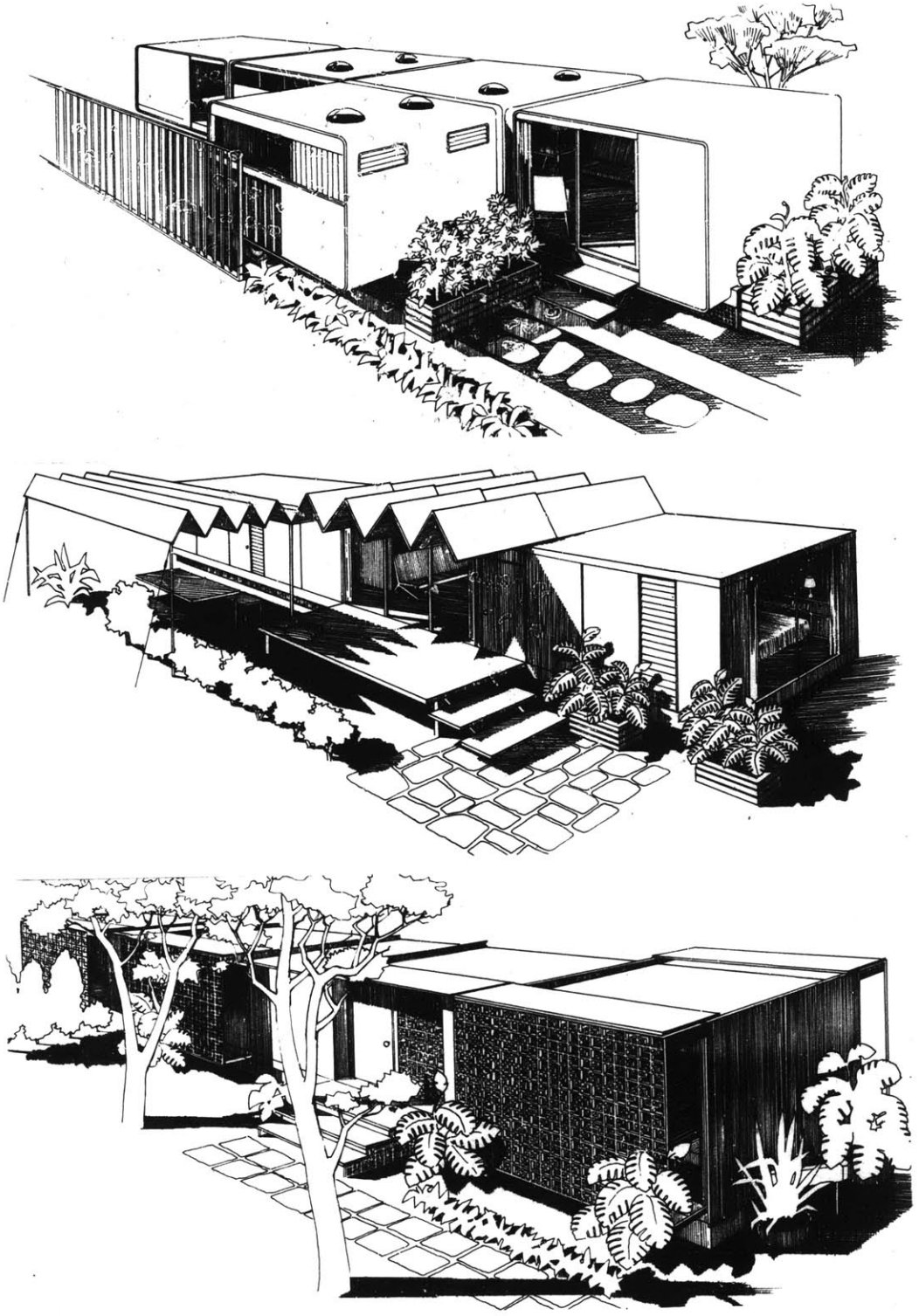
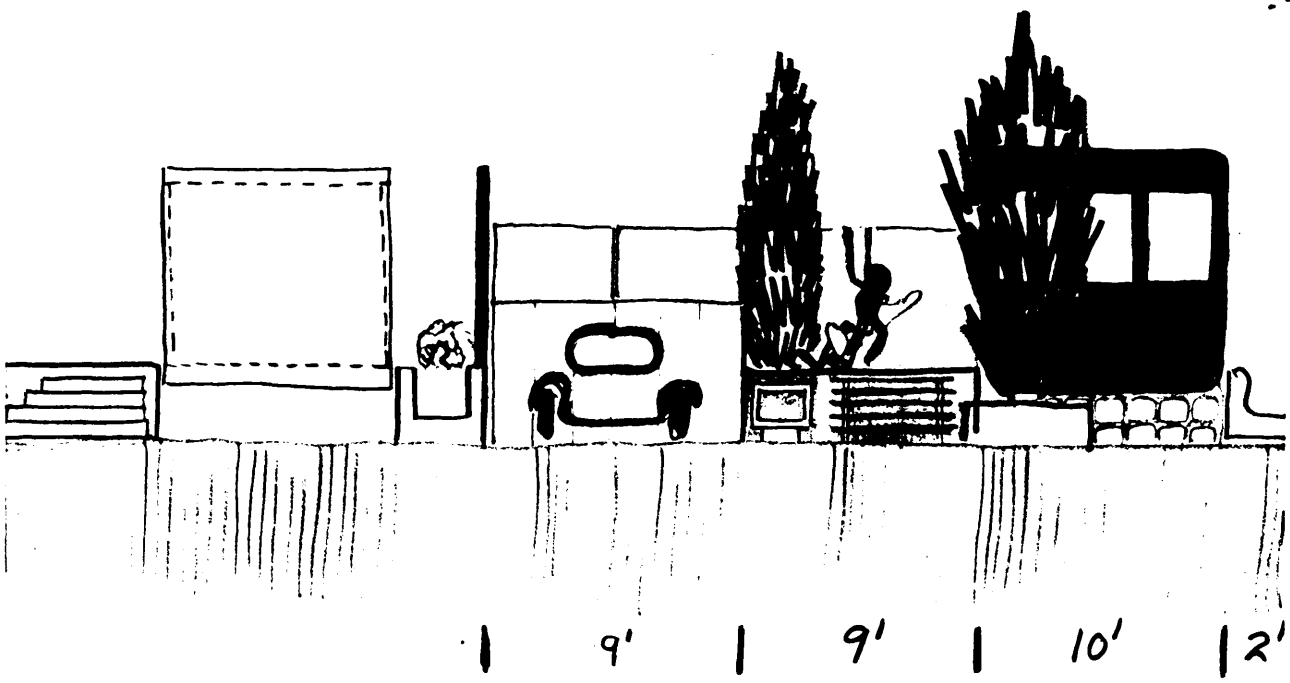


PLATE 3. Proposed Designs by Kaiser Aluminum and Chemical Corp.

2. Grouping of mobile houses. Several factors determine the lot size requirements of a subdivision of dwellings including requirements of the families to be housed and the dwelling unit form. An additional factor was imposed upon this design problem, that was, pressure from community policy to conserve more land than standard housing subdivisions normally do. Thus instead of planning strictly on the basis of needs of families and dwelling types, it was established in advance that families would be housed at densities as high as possible consistent with their various needs. It was seen readily that mobile house structure occupy a small amount of land area and densities as high as 30 units per acre were attempted in experimental diagrams. It was found that without making extraordinary provisions for car parking, internal circulation and extraordinary assumptions about the capacities of people to accept new ideas in community living, 20 units per acre is about the upper limit given mobile dwellings envisaged within this program. As a large proportion of the proposed population would be families with over three members who would need the largest available mobile houses, it was also clear that not all of the families and dwellings would be capable of grouping at 20 units per acre. According to the program, about 3000 families would be composed of single persons, couples and three person families within this density category. The following illustration and plan show a single unit within the 20 family per acre



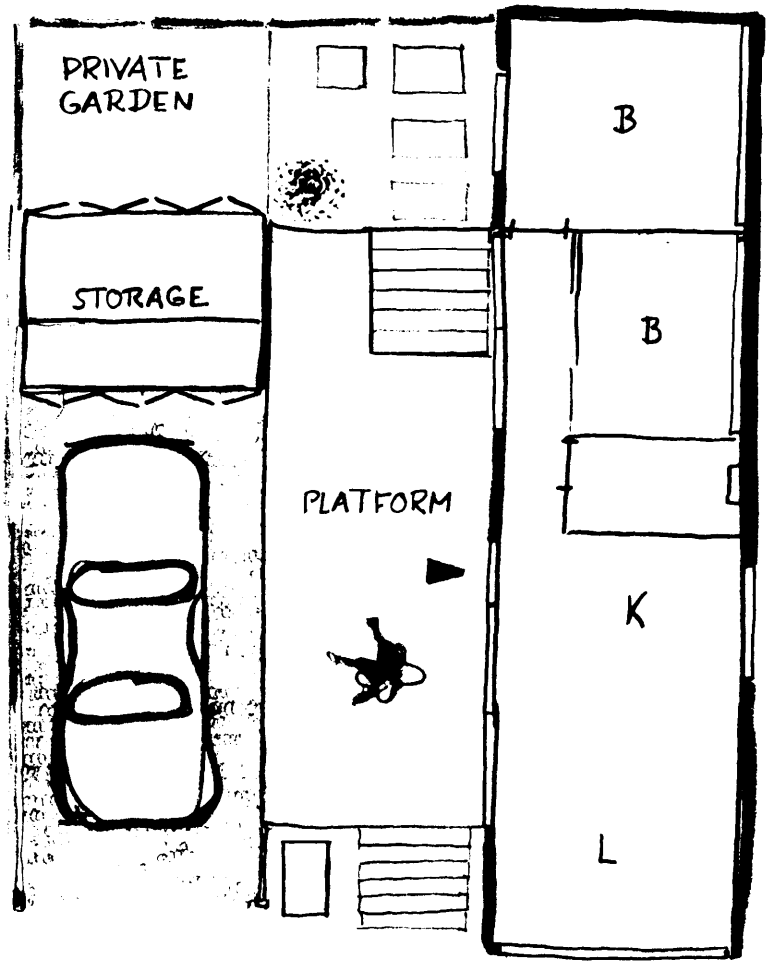




PLATE 4. 10' by 40' unit on 30' by 45' lot.

PLATE 4A

density category. The exhibit shows the relationship of a single unit to its lot and to an adjacent unit. These are presented to show the practicability of spacing mobile houses and families at this density. It follows that the 10 family per acre density is also practicable, given dwellings only slightly larger than that shown, and it is obvious that the 5 family per acre density is practicable. The community land use plan depends upon the mobile home's high density capability.

3. Central facilities. Mobile houses are not independent, except in that they contain all of the basic equipment of a house and therefore are no longer dependent upon community bathing and toilet facilities. They are dependent upon a site well fixtured with utility supplies and drains, and also upon a central management office which may offer one or more facilities and services ranging from the basic collection of rent for a lot and for utility services to a program of activities and services housed in an extensive plant. It is assumed that the sub-areas within the town will vary in their provision of facilities and services to meet varying needs of such different groups as individuals living alone and families absorbed in their private lives. The exhibits illustrating a high density layout are based upon community life requiring the central plant and program.

4. Relationships to existing houses. A tentative design objective to relate the two kinds of dwellings within close physical range of one another was eliminated from the program. While in some communities close relationships of the two might be desirable, there was no reason to press this aspect of the test within the thesis project.

5. Capacity of mobile housing to satisfy demand. Rough comparisons of families' incomes and spatial needs showed that about 90% of the population could afford to purchase a dwelling unit with a sufficient number of bedrooms, which was taken as an index of housing satisfaction. The study of demand was not carried into great detail for the objective in considering demand at all was to identify the approximate proportions of families who would probably be able and who would probably not be able to afford mobile housing as it is presently priced and financed. (See Appendix B.)

## THE PLAN

Plan 1. A portion of one of the residential areas. This site plan shows an area for 300 mobile houses surrounding a central area containing the administrative office, a nursery school and a utility building. This is a part of one of the residential sub-areas shown on the land-use plan. The recreation center is shown in the southeast corner of the site. Mobile houses are arranged in two different orientations with respect to their local streets. Some are parallel to the street and some are perpendicular to the street. While it is customary to park mobile houses in angular relationships to the street, the requirement of compacting 20 dwellings per acre precludes most of the angular siting schemes. Units within this scheme stand within twenty and twenty five feet of one another which might require the use of privacy screening as a part of the outdoor construction where mobile houses are not designed with one side largely opaque.

Plan 2. The land use plan. This is the plan for the whole community of 10,0000 new families in mobile housing and for the existing families and their houses and grounds. The new families are located within fifteen sub-areas ranged along the eastern and the western sides of the site. The old families are located through the center along a north-south axis. The community center, high school and recreation center are combined upon the high ground of the small ridge, previously discussed, and sub-centers and grammar schools are located at points

throughout the site. Existing buildings excepting those absorbed by the new development appear in their old locations. The relationship of aspects of the plan to the problems under study are discussed in the section following the plan.

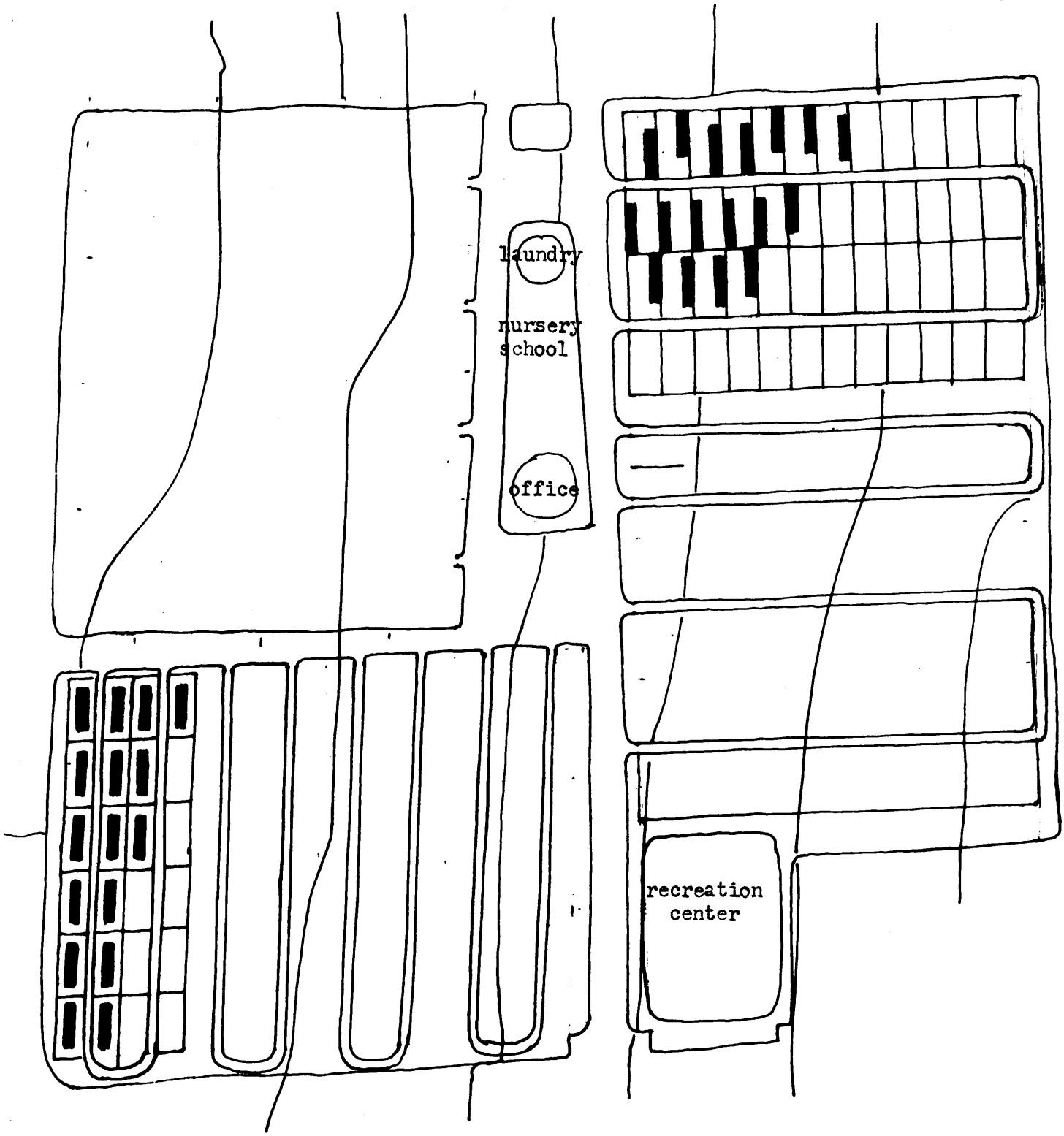



PLATE 5. Site Plan. Scale 3/4" = 100'. Mobile houses 10' by 40'

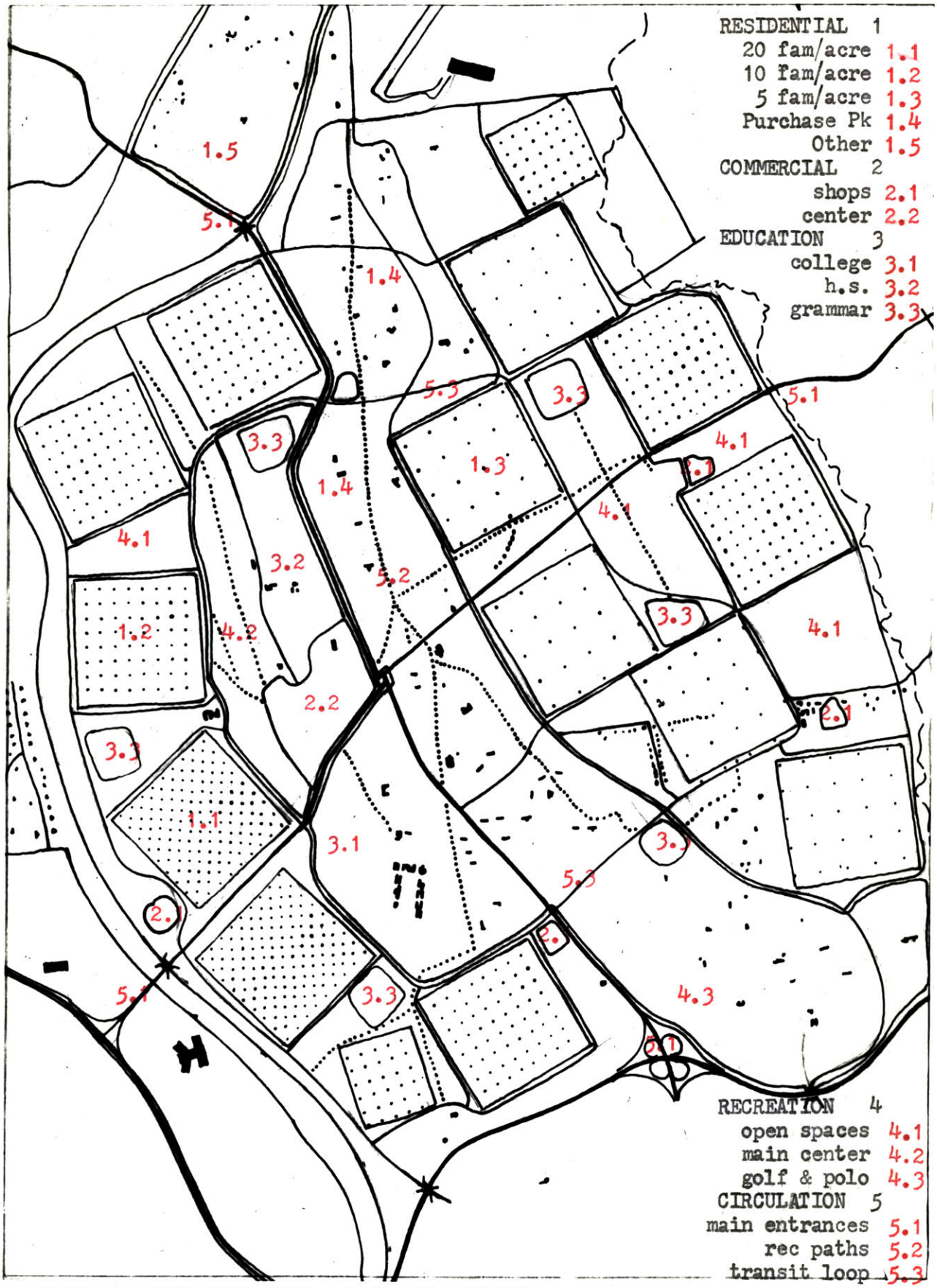



PLATE 5. LAND USE PLAN. Scale 1" = 2000'

## DISCUSSION OF PLAN

1. The conservation of valuable portions and characteristics of the site.

   Conservation problem A. Preserving the houses, grounds and quiet roads of the suburban estates. This problem was solved by:

   1) Identifying isolated elements of the suburban landscape having a potential continuity, setting a boundary around the area bridged by those elements and limiting further development within that area to like elements and excluding mobile housing development from that area.
   2) Giving the area thus bounded and limited a name to distinguish it nominally as a separate, unified district. It is called Purchase Park.
   3) Placing streets coincidental with the boundaries to identify its edges on the ground.
   4) Removing automobile traffic from Purchase Street, leaving the pavement, planting, trees, details intact, and designating it as a park for deliberate landscape treatment.
   5) Installing new access drives running full length along the district's axis to link existing houses and grounds with major roads and with each other to create a perceivable whole.

6) Relocating valuable elements including one of the golf courses and the polo club within the area.

Conservation Problem B. Re-creating within the new development Purchase's traditional land use pattern of alternating and varying building groups and open areas. This problem is solved by:

1) Dividing new development into islands which differ among one another by density, dwelling unit size, central facilities plant, visible way of life, circulation scheme and planting and thus providing a variety of residential sub-areas distinct functionally and geographically from one another.
2) Balancing the residential sub-areas or islands with inter-spaces in which features of the old landscape can be conserved and new features can be developed.

Conservation problem C. Conserving the rural atmosphere of the eastern or farm area of the site. This problem is solved by:

1) Preserving fields in sizes large enough to maintain grassy agriculture, some animal life, and open views interrupted only by a stone fence or a lone tree.
2) Locating housing sub-areas so that major farm buildings can stand free within their own environment.
3) Using landscape furniture such as wooden field gates, corrals of the farm yard, stone walls within site plans of the residential sub-areas whenever functionally appropriate.

Conservation problem D. Controlling the areas just over the border of the town in order to realize their potentialities as sites for continuing uses or re-uses of land and to realize their potentialities as reinforcement of the total conservation scheme. This

problem is solved by:

1) Aligning Route 87, the new Inter-State Highway, along desired boundaries between one land use and another to gain its limitation of access for parts of the new development, along logical terrain features and along rights of way selected to mitigate its negative effects.
2) Planning Spring Lake Valley as a combination golf-country club, and park.
3) Limiting the expanding office and industrial areas future development.
4) Proposing to the Town of Rye that their side of Blind Brook be conserved as open land at least to the extent that open land is maintained on the Purchase side, and if possible arriving at a joint plan for development of the shallow valley along the border. (A recently proposed New York Law would require that any development within 500' of a neighboring town's border would be reviewable by that neighboring town and subject to review and approval at public hearing.)
5) Other areas surrounding the site are residential parts of the same community and there is no immediate threat of undesirable change.

Conservation problem E. The expected increases in traffic volumes which could crowd existing roads and negate other efforts at conservation. This problem is solved by:

1) Creating a new, simple high capacity major road system linking major points of origin and destination within the site, and thereby concentrating rapid, heavy movements on local roads.

2) Locating the neighborhoods of greatest population as close as possible to the main entrance of the new community and to the major road system.

3) Locating a loop for public transit linking a majority of the residential sub-centers, and particularly those in which public transit can be expected to draw patronage with the town center and with the nearby shops and railroad stations of White Plains and Rye.

4) Including within the general land use scheme a system of routes useful for pedestrians and bicylists going to and from schools, shopping centers, points of recreation and residential sub-areas.

Conservation problem F. Softening the impact of a somewhat radical housing form in an environment of traditional construction and culture.

1) Providing distances, areas for natural screening, and in some cases topographical cover between new residential sub-areas and traditional construction.

2) Locating the lowest density neighborhoods which foster the richest organic landscaping within sub-areas which are close to the Purchase Park district.

3) Proposing a housing design service to be administered by the developer which would do design research, give aid and also would control the selection and installation of mobile house components and additions. This administrative service is not of course reflected in the plan, though centers of administration are allocated space in the example neighborhood plan.

2. Housing the Population.

Housing problem A. Overcoming the high cost of suburban housing. The meaning of cost varies: it means high total cost to some families, little variety in prices to some families, becoming tied to long term standard house mortgages to others, inflexibility to a family changing in size or income.

1) Employing products of the mobile homes manufacturers and allied producers for at least two basic level single family detached shelter including complete utility features and an adequate number of bedrooms.

2) Conceiving a community housing organization which would be able to provide a dwelling design, procurement, maintenance and fabrication service to help families exploit the advantages of this form of housing.

3) Establishing residential sub-areas in which lots are leased or rented, depending upon expected mobility needs, thus dividing ownership of land and dwelling so that the resident can move if necessary for job improvement or for a housing improvement.

Housing problem B. Overcoming the limitations of space within mobile houses for a higher than basic level of shelter. This problem is approached by:

1) Establishing community facilities and spaces where community and neighborhood programs and individual activities can be pursued outside the home.

2) Conceiving as a function of the community housing organization a self-help service. It would provide information about ways

of creating space economically and on effectuating an individual's family's house expansion program.

3) Providing sufficiently large lots for families needing space for eventual house expansion.

Housing problem C. Providing a variety of lots whose total effect will allow adequate space for a variety of individual family lot needs and will allow the compacting of housing sub-areas at densities high enough for the conservation of open space between neighborhoods. This problem was solved by:

1) Providing sub-areas of three density levels, high, medium and low (20/acre, 10/acre and 5/acre) in quantities at each level meeting the determined needs of the population as assumed and developed within the program.

2) Establishing sub-area sizes which fit into undeveloped open spaces useful for recreation activities and for pure conservation objectives.

Housing problem D. Providing a basis for a social order in which new families would be able to utilize their free time and participate soon after coming into the community. This problem is most acute for families whose mobility is high.

This problem is approached by:

1) Establishing a physical plant in which useful elements of the leadership and recreation culture of mobile home parks can be borrowed and effectuated.

2) Organizing the physical form of the community into a clear hierarchy of residential sub-neighborhoods and sub-centers,

## CONCLUSIONS

1. One objective stated at the outset and carried into execution as a part of the plan is to provide mobile housing for 10,000 families. This objective was limited by viewing standard 6000 foot lot subidivisions as the only alternative to the mobile housing. That is,the problem did not include the freedom to propose any kind of housing. Yet assuming for the moment that conservation of the rural area, not just the "atmosphere" (also assuming that the two are separable), is given topp priority, then elevator buildings would rank as an important alternative. Elevator buildings placed upon the western edge of the site could easily hous e the 10,000 families and thereby leave the rural area for conservation.

It has been shown by the plan that mobile housing for 10,000 families can occupy as little as 1,000 acres as that amount is the area consumed by the neighborhoods. The whole development for mobile housing could then be placed upon the western side and thereby the rural area could have been left for conservation. However, standard subidivisions of 6000 square foot lots would cover the entire 2,000 acres.

Thus, it is not the 10,000 families which obliterate the rural landscape. Nor was it necessary that the mobile housing for 10,000 families obliterate it. So for purposes of conserving acreage, the mobile house seems better than the standard house and 6000 acre lot, but not as effective as many other forms of housing from the highest density row houses to elevator apartment buildings. But this brings

up another comparison between the mobile and standard housing types.

2. Another objective was to show how the 10,000 families could be housed in mobile housing. There is no doubt about the potential capacities of mobile housing. The double joined component model, the single component with prefabricated addition, the double separated component with center prefabricated living space or the purchase of two models would supply adequate space for any family within the population. But the multiple component mobile houses become less mobile if only because of the costs of hauling one or more extra houses in addition to the core unit. And in fact while many manufacturers have proposed variations such as the two and three part models, not a great many have appeared probably because neither the integrity which the mobile consumer wants, nor the integrity which the non-mobile consumer wants is present in these models. So while theoretically the mobile house can provide as much space as the conventional house, it seldom does owing I believe to a temporary lack of organization on the part of manufacturers and site developers. So in order to compare the mobile house with the standard house, it is necessary to down-grade the mobile houses' lack of space, or show that that lack is accounted for within other, perhaps centralized structures, or show that families do not on the whole want the space of a standard house, or compare their potentials.

a) The mobile houses produced with two or more bedrooms in those models of average size do crowd the occupants of the smaller bedrooms, unless the occupants happen to prefer spartan quarters. The master bedrooms is sometimes large enough to accommodate a table or desk in addition to the bed and a chair. Note that these comments on space do not apply equally to units built for smaller families. But they do weaken the thesis as an immediate, workable program.

b) There is no doubt that in many existing mobile housing communities the compactness of the dwellings is a true expression of the occupants' greater interest in community life than in private home life. It has been said by cultural critics that life in the home has contracted to basic activities and that reciprocally extra-basic activities have moved outside the home. Whether this is true generally is of great importance in determining the future role of mobile housing, and in assessing the validity of a plan for 10,000 'mobile' families.

c) The potential ability of mobile housing to supply space equal to that of standard housing is a long range support to the thesis. Improvements in component design for a greater variety of family needs, for more compact packagability which would allow greater freedom in form and lesser costs for transportation, for air transportation and other technical

improvements suggest the eventual replacement of traditional methods of construction for housing for the moderate income families.

An ideal world of mobile housing seems to be incapable of being realized for the proposed broad population of this thesis program at this moment.

3. Planning for mobile housing with a view to conserving as much open land as possible created the need to look closely at the families' differing spatial needs. Formulating a table of organization, as it were, and correlating it to mobile housing components yields the somewhat obvious though apparently neglected insight that a 'normal' population does have varying requirements which if expressed in the plan will result in a more economical use of the land. Perhaps tighter programming would result in a more interesting visual form as well. The author does not take any position suburbia versus non-suburbia. But it is agreed among many architects and planners that any housing, suburban or inlying is deficient which looks and uses land as though every family were a statistic.

## SUGGESTIONS FOR FUTURE WORK

1. A basic question which was unanswered at the outset of the thesis project is still unanswered. Which is more valuable: preservation of the whole farm by consolidating housing into larger solid areas outside of the farm or creation of a network of open and developed areas.? Both apparently could not be done given the proposed population of 10,000. Design experiments were not carried far enough to definitely establish the validity, that is, the probable effective use by the population of the network of open spaces running throughout the site. If such studies were undertaken, they could reveal that a network of generous open spaces would be used intensively. If so, carving of the farm into residential squares and fields would be justified. If not, it would have been unfortunate to have done so with the farm. So it would be valuable to find answers to the following questions before undertaking construction of the development:

a) how would the open spaces between residential areas be used?

b) are the open spaces extravagantly large, too small or close to an optimum size for use by adjacent residential areas?

c) if the farm were preserved intact how would it be used?

d) how could the farm be supported?

e) would the open areas "read" as open areas from the viewpoints of passers-by, and what weight should be given the interests of passers-by in the design of the community?

# APPENDIX

Appendix ___. Families, Incomes, Expenditures by percent of Income, and by Type of Good, and Commercial Floor Space as a result.

| F | S | AI | TI | f | dg | cl | l | dp | s | fn | h | r | car | th | o |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,000 | 1 | 5,600 | 5.6 | 28% | 1% | 6% | 1% | 8% | 1% | 2% | 2% | 3% | 10% | 33% | 3%* |
| | | | | 1.6 | .1 | .3 | .1 | .4 | .1 | .1 | .1 | .2 | .6 | 1.8 | .2 |
| 3,500 | 2 | 6,000 | 21.0 | 24% | 1% | 7% | 1% | 8% | 2% | 4% | 3% | 3% | 9% | 3% | 5% |
| | | | | 5.1 | .2 | 1.4 | .2 | 1.4 | .6 | .8 | .6 | .6 | 1.8 | 7.3 | .2 |
| 2,000 | 3 | 6,500 | 13.0 | 28% | 1% | 8% | 1% | 10% | 2% | 2% | 3% | 2% | 12% | 35% | 4% |
| | | | | 3.6 | .1 | 1.0 | .1 | 1.3 | .2 | .2 | .4 | .2 | 1.7 | 4.6 | .4 |
| 2,000 | 4 | 7,700 | 15.4 | 25% | 2% | 7% | 2% | 10% | 2% | 3% | 3% | 2% | 12% | 32% | 1% |
| | | | | 3.8 | .3 | 1.3 | .3 | 1.5 | .3 | .5 | .5 | .3 | 1.8 | 4.9 | .2 |
| 1,000 | 5 | 8,400 | 8.4 | 20% | 2% | 7% | 2% | 9% | 2% | 3% | 2% | 3% | 9% | 35% | 6% |
| | | | | 1.5 | .2 | .6 | .2 | .8 | .2 | .3 | .2 | .3 | .8 | 2.9 | .5 |
| 500 | 6 | 8,800 | 4.4 | 18% | 2% | 6% | 2% | 8% | 2% | 3% | 2% | 4% | 10% | 38% | 7% |
| | | | | .8 | .1 | .3 | .1 | .4 | .1 | .1 | .1 | .2 | .4 | 1.6 | .3 |
| Totals by type good | | | | 15.7 | 1.0 | 4.6 | 1.0 | 5.7 | 1.2 | 1.7 | 1.6 | 1.6 | 6.8 | 22.3 | 1.8 |
| Expenditures outside | | | | 1.7 | 0.0 | 3.6 | .5 | 3.7 | .2 | 1.2 | .6 | 1.1 | 3.8 | | 1.3 |
| Purchase expenditures | | | | 14.0 | 1.0 | 1.0 | .5 | 2.0 | 1.0 | .5 | 1.0 | .5 | 3.0 | | .5 |
| Dollars/square foot | | | | 90 | 60 | 40 | 60 | 60 | 60 | 40 | 40 | 40 | 30 | | X |

Floor areas

| 158,000 | 16,700 | 25,000 | 8,300 | 33,400 | 16,700 | 12,500 | 25,000 | 12,500 | 100,000 |
|---|---|---|---|---|---|---|---|---|---|
| Food(f) | Drugs (d) | Cloth-ing(cl) | Liquor (l) | Dept. store (dp) | Shoes (s) | Furni-ture (fn) | House-hold (h) | Restau-rant (r) | Car (car) |

F - Number of Families
S - Family Size
AI - Average Income ( dollars per year )
TI - Total Income ( million dollars per year )
__ - million dollars spent per year

Notes
Car service stations . , occupy about 10,000 sq.' Small sub-area essential food shops .. 15,000 sq.' Both include parking. Center parking 4* floor area

*Source: Comparative Housing Study, Graduate School of Design, Harvard University Cambridge, Massachusetts, May 1958. Figures from'Urban Land Institute' 1954, for family earning 5,500. Other percent figures adjusted from source. Income figures taken from this thesis' program.

Appendix B: Numbers of Families by House Size, Income, Ability to Pay for House and For Housing Environment Standard.

| Environment Standard or Cost of Lot Key | Size of Mobile House by Number of Bedrooms | | | | | |
|---|---|---|---|---|---|---|
| | 1 Bedroom | 2 Bedroom | 3 Bedroom | 4 Bedroom | 5 Bedroom | 6 Bedroom |
| | Cost and Monthly Payment Range By Size Given 10% Down; 7%, 7 yr. Terms | | | | | |
| $30/M. 5 | $3,000[4] | $3,500 | $4,500 | $5,500 | $7,000 | $8,500 |
| 40/M | or$40/mo. | or$50/M. | or $60/M. | or$75/M | or 95/M | or 120/M |
| 50/M | +$300DN[2] | +$350DN | +$450DN | +$550DN | +$700DN | +$850DN |
| 60/M | to | (13,000) | (14,000) | (15,000) | (17,000) | (20,000) |
| 70/M | $12,000 | | | | | |
| | or $160/M[1] | | | | | |
| | +$1,200DN[2] | | | | | |

| Income After Taxes | Housing Allocat. | | | | | | |
|---|---|---|---|---|---|---|---|
| $3500 | $73.00[3] | 200 | 100 | | | | |
| 4000 | 83.00 | 630 | 900 | 120 | | | |
| 4500 | 90.00 | 200 | 340 | 240 | 120 | | |
| 5000 | 100.00 | 630 | 900 | 210 | 210 | | |
| 5500 | 110.00 | 140 | 60 | | | | |
| 6000 | 120.00 | 420 | 840 | 320 | 120 | | |
| 6500 | 130.00 | | | | | | |
| 7500 | 150.00 | 60 | | | | 80 | 10 6 |
| 8000 | 160.00 | | | | | | |
| 9000 | 189.00 | | | | | | |

Appendix B(continued)

This (incomplete) table is an analysis of desire and/or need in terms of ability to pay. The objective is to show quantities of families which can be satisfied given certain incomes and costs correlated with desire in terms of numberss of bedrooms. Conclusions: Most (a large majority or about 90-95%) families can buy mobile houses with the number (not necessarily the space) of rooms they need. The remainder would need savings, unearned income or subsidies. About 60% of the families could live at a medium-high to high environmental standard (any family below yellow line on table). About 20% of the families would survive with economic difficulty (any family on either side of red line, but above the orange line)

Footnotes:

1. The monthly payments cited are based upon the following: downpayment of 10%, balance on a mortgage repayable at 7% interest against a declining loan balance and repayable over a term of 7 years. These terms are conservative by most housing finance standards, but at the moment they apply throughout the mobile home market with some variations. A Cchange to a less conservative standard is anticipated by the author as a result of the increasing ability of "mobile homes" to pass F.H.A. housing standards, as a result of maket pressures and as a result of lenders "good" experience with "mobile home" mortgagors.
2. The 10% downpayment is about what is required by lenders about whose practices the author has interviewed many "mobile home" dealers, 25% downpayment was at one time the advertised standard. Practice is characterized by 10% or lower down payments. Many bankers sanction

Footnotes (continued)

these liberal practices to maintain business.

3. Based upon 1/4 of 1 mo. income. Higher incomes would pay lesser proportions, but here for simplicity it is assumed that all families can pay as much as 25%. This would be quite accurate for the lower income families for whom most critical financial problems occur. While this assumption would be dangerous to cling to outside of this thesis project, it is of little consequence in these pages.

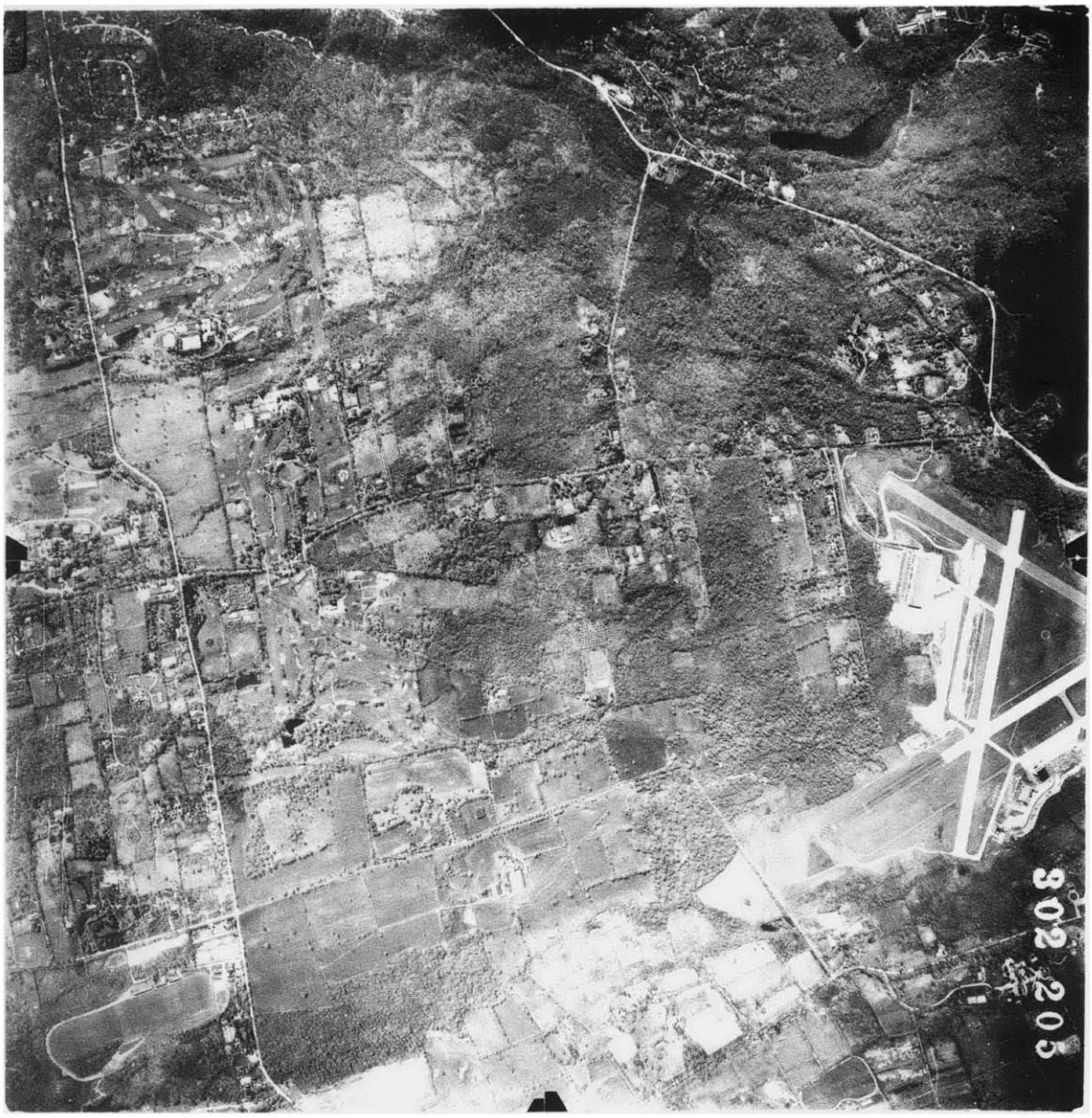
4. "Mobile Home" costs Trailer Topics, March 1961, pp. 107-183, "1961 Mobile Home and Travel Trailer Specifications" which list consumer prices for products of some manufacturers. Many manufacturers do not allow price listings to be published in this table. However, enough do and those represent a reasonable enough range of costs, for the purpose of identifying thesis problems.

5. Lines of color represent standard of living going along with lot development cost, amount and quality of facilities ancillary to the lot, value of the lot (negligible compared to first 740). Families falling above or below a line would have a tougher or easier task of maintaining that standard, respectively. Exceptional circumstances of a particular family could cuase or allow that family to maintain a lower or higher standard. As with number 7 which says that financial standards effect the monthly payment amount on dwelling units and those standards are conservative, likewise financial standards, to a lesser, but significant extent effect the payment for a lot and ancillary plant and likewise these standards are undergoing liberalization.

Appendix B (continued)

Footnotes (continued)

6. Lines are located by adding lowest cost dwelling to the lot rent and by aligning sum with housing allocations.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